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ABSTRACT

Vitkus and Horowitz (1987) found that lonely people demonstrated adequate social behavior when they were assigned to controlling interpersonal roles. Despite this successful performance, they evaluated themselves and their behavior negatively. Study 1 replicated these findings and extended them to naturalistic interactions. In a hypothetical problem-solving dyad involving paired college students (N=76), students were diagnosed as either lonely or nonlonely and then assigned respective roles of Person with the Problem or Springboard (listener/advisor). Analysis of videotaped sessions showed that all subjects were capable of adequate social performance, but adopting a passive social role interfered with expression of this behavior. Study 2 followed the procedures of Study 1 with the difference that all subjects were assigned to the Springboard role (who listens to a partner describe the problem) and positive or neutral feedback was provided. Results showed that unambiguous positive feedback reduced the negativity of lonely students' self-evaluations. An interpersonal model of loneliness is proposed to explain these results. The model suggests that in typical interactions, lonely people adopt social roles that prevent them from expressing appropriate social behavior. In addition, without clear performance cues, lonely people fail to recognize occasions when they do perform adequately. Their resulting negative self-appraisals reaffirm their initial feelings of inadequacy, thereby sustaining their loneliness. Therapeutic implications of this model and limitations of the present research are discussed. (TE)

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The Effect of Social Roles and Performance Cues on Self-Evaluations: Evidence for an Interpersonal Model of Loneliness

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Abstract

Vitkus and Horowitz (1987) found that lonely people demonstrated adequate social behavior when they were assigned to controlling interpersonal roles. Despite this successful performance, they evaluated themselves and their behavior negatively. Study 1 replicates these findings and extends them to naturalistic interactions. Study 2 shows that unambiguous positive feedback reduces the negativity of lonely students' self-evaluations. An interpersonal model of loneliness is proposed to explain these results. In typical interactions lonely people adopt social roles that prevent them from expressing appropriate social behavior. In addition, without clear performance cues lonely people fail to recognize occasions when they do perform adequately. Their resulting negative self-appraisals reaffirm their initial feelings of inadequacy, thereby sustaining their loneliness. Therapeutic implications of this model and limitations of the present research are discussed.

The Effect of Social Roles and Performance Cues on Self-Evaluations:

Evidence for an Interpersonal Model of Loneliness

Research indicates that lonely people show characteristic deficits in their social performance and their subjective evaluations. Jones, Hobbs, and Hockenbury (1982) for example, found that lonely people make fewer references to their interaction partners during a conversation and say less to "keep the conversation going." French (1981) and Horowitz, French, and Anderson (1982) have shown that lonely people generate fewer and less effective solutions to hypothetical social situations. Lonely people are less sociable (Chelune, Sultan, and Williams, 1980; Horowitz and French, 1979; Solano, Batten, and Parish, 1982), less assertive (Brennen, 1982; Jones, Freeman, and Goswick, 1981), feel that they have less control (Solano, 1987), and rate themselves and their interaction partners negatively (Jones et al, 1981; Vitkus and Horowitz, 1987).

Most researchers who study loneliness appear to accept a social skills deficit model (e.g., Hanley-Dunn, Maxwell, and Santos, 1985; Hogan, Jones, and Cheek, 1985; Jones, et al., 1982; Solano and Koester, 1989). According to this model, lonely people lack the ability to perform adequate and/or appropriate social behavior. This model implies that skills training is the treatment of choice for lonely people, and researchers point to the success of skills training as support for this approach. As one example, Jones, et al. (1982) trained lonely subjects to show more personal attention to their partners by asking questions and making statements about the partner. As a result of this training, the lonely subjects increased their use of partner attention, their scores on a measure of loneliness decreased, and their self-ratings on a number of measures improved.

One limitation of the skills deficit model is that it cannot account for the episodic nature of loneliness reported by some researchers (Peplau and Perlman, 1982; Weiss, 1973).

It is not clear what mechanisms would make it possible for a *skill* to vary over time. A second limitation of the skills deficit model is that describing people as lacking a skill casts them as being personally deficient, which may exacerbate their typical feelings of inadequacy. A comprehensive explanation of loneliness must account for the cyclic nature of the disorder and yet explain the success of skills training treatments. Conceptualizing loneliness as the result of an interpersonal process that suppresses the expression of adequate social performance would fulfill these goals.

Vitkus and Horowitz (1987) assigned lonely and nonlonely subjects to dominant and submissive social roles in interactions with a conversation partner. These researchers found that within each role, the social performance of lonely subjects was indistinguishable from that of nonlonely subjects. Despite this behavioral parity, lonely subjects rated themselves and their performance more negatively. In other words, subjects' behavior was mediated by their role, but their self-evaluations remained congruent with their self-rated loneliness.

Although these results are intriguing, the methodology employed by these researchers may have unduly influenced subjects' behavior. Most importantly, subjects interacted with an experimental accomplice who was trained to respond in accordance with one of two interpersonal roles. In addition, the subject and the confederate were separated by a partition, which prevented them from interacting nonverbally. It is possible that the confederate's scripted behavior and the "blind" interaction paradigm may have eliminated basic cues that are present in typical interactions. One purpose of these studies was to replicate the findings of Vitkus and Horowitz (1987) under more naturalistic conditions where two naive subjects engage in relatively unstructured, face-to-face conversations. A second purpose was to clarify *why* lonely people who demonstrate adequate interpersonal performance still rate themselves as socially inept.

Consistency Motives vs. Environmental Processes

Consistency theories of personality (e.g., Festinger, 1957; Kelly, 1955; Lecky, 1945) assert that people are motivated to maintain integrated self-views, even if those views are negative or unflattering. Research in this tradition by Swann and his colleagues (e.g., Swann, 1983; 1984; Swann and Ely, 1984; Swann and Hill, 1982; Swann, Pelham, and Krull, 1989; Swann and Read, 1981) has demonstrated that people are motivated to reaffirm their fundamental self-conceptions. For example, Swann and Read found that students who rated themselves as dislikable sought feedback from an interaction partner that confirmed their negative self-views. Recent work suggests that these self-verification processes are particularly active during cognitive tasks (Swann, Griffin, Predmore, and Gaines, 1987) and evaluations of negative topics (Swann, Pelham, and Krull, 1989).

Models of personality that emphasize environmental processes assert that interpersonal behavior is mediated by evaluations of available contextual cues. These cues can include the reactions of interaction partners (e.g., Coates and Wortman, 1980; Coyne, 1976a), complementary behavior exchanges (e.g., Horowitz and Vitkus, 1986; Kiesler, 1983) and established learning histories (e.g., Bellack and Morrison, 1982; Hogan, et al., 1985). Cues have the greatest impact in "weak" situations such as unstructured interactions, where expectations of appropriate behavior are relatively unclear and events can be interpreted subjectively (Ickes, 1982; Mischel, 1977). Since clear environmental signals are largely missing in "weak" situations, it is likely that people encode relevant data inaccurately and instead rely on their prior experiences and expectancies when evaluating themselves and others (Nisbett and Ross, 1980).

Study 2 compares these two approaches directly by providing lonely and nonlonely subjects with positive verbal feedback about their social performance. According to self-

verification theory, people resist appraisals that are inconsistent with their self-conceptions. Consequently, positive feedback would not affect the self-evaluations of lonely subjects to any appreciable degree; if anything, these appraisals would prompt lonely subjects to amplify their characteristic negative ratings. Conversely, the environmental view posits that people base their self-evaluations on information accessible to them. Accordingly, lonely subjects would be expected to show decreased negativity following positive feedback. This change may be less dramatic for nonlonely subjects since positive feedback would add little new information to their already optimistic self-views.

Study 1

Method

Subjects. The revised UCLA Loneliness Scale (Russell, et al., 1980) was administered to 172 introductory psychology students at Stanford University. Subjects who scored in the upper third of the distribution (scores over 40) were considered "lonely"; those in the lower third (scores below 32) were considered "nonlonely." A female undergraduate experimenter naive to the experimental hypotheses and subjects' loneliness contacted subjects by telephone and asked them to participate in a study in which they would "discuss common, everyday problems with another person." Seventy-six students (40 lonely and 36 nonlonely, 46 male and 30 female) participated in exchange for experimental credit (all other subjects contacted had completed their experimental requirement). Subjects were assigned to pairs for their experimental session. To avoid gender and familiarity effects as possible sources of error variance, each dyad was composed of subjects of the same sex who were unacquainted with each other.

The Interaction. When subjects arrived at the experiment, they were asked to engage in a brief problem-solving session that investigated interpersonal problems. To avoid

suspicion as to the experimental hypotheses, subjects chose one envelope containing a problem from a group of ten. In fact, all envelopes contained the same three hypothetical situations: (1) feeling diffident about joining an ongoing volleyball game, (2) having difficulty conversing with a stranger at a party, and (3) confronting an unfriendly coworker. Previous research (French, 1981; Horowitz, et al., 1982) found that lonely subjects generated fewer solutions to these problems than did nonlonely subjects. In addition, the problem posed a global question: "How do people go about meeting other people?" Subjects were then randomly assigned to their interpersonal roles. The experimenter emphasized that both subjects should attempt to generate as many solutions as they could, regardless of their assigned role.

Interpersonal Roles. Subjects were assigned to one of two interpersonal roles. Those assigned to be the **Person with the Problem (Role Pr)** were asked to describe the problems to their interaction partners in a personal way, using their own experiences and imagination. Subjects assigned to be the **Springboard (Role Sp)** were told to listen to their partners describe the problem. They could offer suggestions or advice, or they could simply listen. Lonely (L) and nonlonely (N) subjects were assigned to their roles in the following manner: 10 L>L pairs, 10 L>N pairs, 10 N>L pairs, and 8 N>N pairs. An arrow (>) indicates that the subject type on the left described a problem (Role Pr) to the subject type on the right (Role Sp).

To avoid expectancy effects, the descriptions of these two roles were purposely worded to appear neutral with respect to their dominance; hence, the level of dominance inherent in these roles may differ from subjects' expectations. Specifically, although subjects in Role Pr actively generate descriptions and initially lead the conversations, their complaints cast them as people who are socially inadequate and in need of help. Role Sp may initially

sound relatively passive in that subjects in this role merely respond to their partners and, in fact, need not respond at all. During the course of the interaction, though, subjects in Role Sp are inevitably induced to take on a controlling role, usually by offering advice and reassurances to their partners. To test these intuitions empirically, subjects were asked to rate their preference for both roles before they were assigned and again after the interaction.

Behavioral Measures. Subjects were videotaped during their problem-solving sessions, and a naive judge coded these tapes for six behaviors that had reliably differentiated lonely and nonlonely subjects in past research: (1) number of solutions generated, (2) number of conversation initiations (questions, opinions, elaborations, and other unsolicited remarks), (3) number of fidgety movements, (4) eye contact, (5) duration of the problem description, and (6) duration of the problem-solving session. In addition, the quality of the solutions was rated. A second naive coder scored 10 randomly chosen tapes (13%) to determine interrater reliability.

Self-Report Measures. Subjects completed the revised UCLA Loneliness Scale (UCLA) at a preselection administration. At the beginning of the experimental session, subjects completed a short (61-item) form of the Multiple Adjective Affective Check List, Today Form (MAACL) (Zuckerman and Lubin, 1965). Following the problem-solving session, subjects completed a second MAACL and UCLA. They were also asked to estimate the number and quality of the solutions they and their partners generated during the problem-solving session.

Results

Interrater Reliability. Pearson product-moment correlation coefficients assessed the reliability of the two coders. The *r*s were .92 (number of solutions), .81 (quality of solutions), .79 (number of initiations), .82 (number of fidgety movements), .91 (eye contact),

.99 (duration of problem description), and .99 (total interaction time).

Sex Differences. No sex differences were found for any dependent variable; the responses of male and female subjects were pooled for subsequent analyses.

Behavioral Measures. Subjects' responses to the four problem situations were highly correlated (mean $r = .91$), and a single total score was used for analysis. No significant differences were found for the loneliness of the partner, and subjects' scores were collapsed across this variable. A 2 X 2 factorial analysis of variance (ANOVA) was performed on each behavioral measure to determine the effects of loneliness (lonely vs. nonlonely) and role assignment (Role Pr vs. Role Sp).

Lonely subjects did not differ from nonlonely subjects on any behavioral measure (all $Fs < 1.40$). This replicates the findings of Vitkus and Horowitz (1987). In contrast, subjects' assigned role did affect their ability to generate solutions. As Figure 1 illustrates, subjects in Role Sp provided more solutions to the four problems, $F(1,62)$[1] $= 14.31$, $p < .001$, and generated solutions of higher quality, $F(1,62) = 8.36$, $p = .005$. The mean quality of solutions generated by subjects in Role Sp was higher than a theoretically neutral score of 12.00, $t(30) = 3.06$, $p = .004$, whereas the solutions provided by subjects in Role Pr were rated as somewhat lower than this neutral value, $t(31) = -1.43$, $p = .17$. Surprisingly, the assigned role did not affect any of the other behavioral measures (all $Fs < 1$). This finding will be examined in the discussion.

Insert Figure 1 about here

Subjects' estimates of the *number* of their own and their partner's solutions showed a pattern very similar to that of the objective coders.[2] Subjects in Role Sp reported generating

more solutions than did subjects in Role Pr, F (1,72) = 4.59, p = .036. Subjects in Role Pr estimated that their partners (who were in Role Sp) generated more solutions, F (1,72) = 7.64, p = .007. Lonely and nonlonely subjects did not differ in these judgments, all Fs < 1.

Subjects' estimates of the *quality* of the solutions showed an effect of both their role and their level of loneliness. Subjects in Role Sp rated their solutions as being somewhat better than did subjects in Role Pr, F (1,72) = 3.44, p = .068, and subjects in Role Pr rated their partners' solutions higher than did the subjects in Role Sp, F (1,72) = 5.32, p = .024. In addition, lonely subjects rated their solutions as being of poorer quality than did nonlonely subjects, F (1,72) = 5.13, p = .026; they also rated the solutions of their partners as being of poorer quality than did the nonlonely subjects, F (1,72) = 5.24, p = .025. These subjective assessments do not concur with the pattern of objective ratings. The coders found the solutions of lonely people to be only slightly poorer than those of nonlonely people, F (1,62) = 1.66, *ns* and found no differences at all in the quality of the solutions provided by the partners of lonely and nonlonely subjects, F < 0.20). Means of the number and quality of subjects' solutions are presented in Table 1.

Insert Table 1 about here

Self-Report Measures. After the interaction lonely subjects continued to rate themselves as lonelier than nonlonely subjects, F (1,68) = 89.63, p < .001. Subjects' scores on this measure remained very stable with the exception of lonely subjects in Role Pr, whose scores dropped an average of 7.4 points, t (19) = 3.71, p < .001. This pattern was unexpected and is inconsistent with their MAACL scores.

MAACL scores[3] indicate that most subjects decreased the negativity of their mood

ratings as a result of the conversation, t (75) = -3.88, $p < .001$. This change was especially pronounced in nonlonely subjects. Before the interaction, lonely subjects rated their mood as more negative than did nonlonely subjects, though this difference was not significant, F (1,68) = 2.40, $p = .13$. After the interaction, this difference was significant, F (1,68) = 5.06, $p = .028$. Thus. the interactions served to increase the difference between lonely and nonlonely subjects in their self-rated mood. UCLA and MAACL scores are presented in Table 2.

Insert Table 2 about here

Role Ratings. It was hypothesized that lonely subjects would show a preference for Role Pr, especially after the interaction, when the they may have become more aware of its interpersonal function. When asked how much they would like to enact each of the two roles, initially all subjects preferred Role Sp (i.e., all ratings were higher than a theoretically neutral value of 5.00.) However, nonlonely subjects rated Role Sp higher than lonely subjects did, both before the interaction, F (1,71) = 4.86, $p = .031$, and even more so after the interaction, F (1,71) = 7.51, $p = .008$.

Initially subjects did not differ in their ratings of Role Pr, $F < 1$. After the interaction, however, lonely subjects who had enacted Role Pr rated it significantly higher than neutral, t (19) = 3.69, $p = .002$, and even higher than Role Sp, though not significantly. The other subjects rated Role Sp higher than Role Pr both before, t (55) = 7.12, $p < .001$, and after, t (55) = 5.36, $p < .001$, the interaction. Subjects' role ratings are presented in Table 3.

Insert Table 3 about here

In short, most subjects would rather listen to a problem than describe one, but lonely subjects who were assigned to describe a problem increased their liking for this role. This preference for familiar, passive roles is consistent with previous research involving lonely (Solano, 1987) and depressed (Hokanson and Meyer, 1984) subjects.

Discussion

The findings of Study 1 replicated those of Vitkus and Horowitz (1987) and extended them to more naturalistic interactions between two naive subjects. Social behavior that was directly relevant to the problem-solving task (generating effective solutions to interpersonal problems) was mediated by subjects' social roles, not their self-rated level of loneliness. In other words, all subjects were capable of adequate social performance, but adopting a passive social role interfered with the expression of this behavior.

These results also showed that in the naturalistic conditions of this study, the role manipulation had no effect on conversation initiations, fidgety movements, eye contact, or interaction time. These results differ from those of Vitkus and Horowitz (1987), in which one participant was a trained confederate whose behavior was carefully scripted to draw out a variety of behaviors. In the present study, the subjects were merely told to discuss solutions to problems. Once the problems were described, they were free to interact in any way they chose. This limited instruction seems to have resulted in an effect limited to problem solving itself.

As predicted, the role manipulation had little impact on subjects' self-evaluations. One exception was the decrease in UCLA scores of lonely subjects who were assigned to Role

Pr. One explanation is that these subjects felt comfortable in this passive role and expressed this familiarity by rating themselves as less lonely. Alternatively, the drop may simply reflect a regression to the mean; this group had preselection UCLA scores approximately .5 SDs (4 points) above the other lonely group.

Lonely and nonlonely subjects also differed in their ratings of the interpersonal roles. Lonely subjects who enacted Role Pr rated it higher than Role Sp and significantly higher than neutral. This result suggests that lonely people who recently enacted a passive role are likely to adopt similar roles in future interactions. However, since subjects did not rate the roles along a dominant-submissive dimension, it is unclear whether the partiality lonely people show for Role Pr constitutes a conscious choice to behave passively or merely a habitual preference for a familiar role. This question is addressed in Study 2 by having subjects rate directly the dominance and friendliness of Role Pr and Role Sp.

Study 2

Method

Subjects. Preselection UCLA scales were completed by 398 students enrolled in introductory psychology classes at Barnard College. Students who scored in the highest third (above 41) were considered "lonely"; those who scored in the lower third (below 30) were considered "nonlonely." Thirty-two lonely and 32 nonlonely students (57 female and 7 male) were selected at random. A female undergraduate experimenter naive to the experimental hypotheses and subjects' loneliness contacted these subjects by telephone and asked them to participate in a study in which they would "discuss a common, everyday problem with another person."

The Interaction. Study 2 followed the procedures of Study 1, but with three crucial differences. First, all subjects were assigned (ostensibly at random) to Role Sp, the

interaction "springboard" who listens to a partner describe a problem. The results of Vitkus and Horowitz (1987) and Study 1 indicate that this role enables both lonely and nonlonely subjects to express adequate social performance.

Second, one of two female undergraduate confederates (both blind to the experimental hypotheses) served as an interaction partner and provided subjects with performance feedback. Half of the lonely and half of the nonlonely subjects received positive feedback; the remaining subjects received neutral feedback. (A pilot sample rated the neutral feedback as slightly negative; direct negative feedback was avoided for ethical concerns.) During the conversation, positive feedback took the form of small agreements and encouragements following subjects' suggestions (e.g., "Yes, uh-huh," "That's a good idea."). Subjects receiving neutral feedback heard noncommittal comments (e.g., "Hmmmm," "I guess."). The clearest feedback came at the end of the session. Those receiving positive feedback were given a supportive statement ("Thanks, you helped me a lot; you're good at thinking up solutions."). Those receiving neutral feedback heard a noncommittal statement ("Thanks, but I don't know if this has helped me much."). The experimenter entered the room immediately after this feedback was presented, thus preventing any extended discussion. This procedure was followed to allow subjects the greatest opportunity to demonstrate self-verification. According to Swann and Hill (1982), self-discrepant feedback has more impact on self-ratings if subjects are not given an opportunity to reject or refute it.

Third, to determine whether these findings would generalize to other content areas, the confederates described one of two problems. Half of the subjects listened to a problem dealing with loneliness: having difficulty meeting people and making friends; the other half heard an impersonal problem: organizing time to get coursework completed.

Behavioral Measures. Subjects were videotaped, and two naive undergraduate coders viewed these tapes and rated the subjects along three behavioral dimensions: (1) number of solutions generated, (2) eye contact, and (3) total interaction time. The quality of subjects' solutions was also rated.

Self-Report Measures. As in Study 1, the UCLA was administered as a preselection measure and again after the interaction. The MAACL was administered pre- and postinteraction, and scores were tabulated using the same method as in Study 1. To assess the impact of the feedback manipulation, UCLA and MAACL change scores were calculated by subtracting subjects' preinteraction scores from their postinteraction scores. In addition, subjects rated the number and quality of their own and their partners' solutions.

Interpersonal Measures. Finally, subjects rated the degree of dominance and friendliness they saw in themselves, their partners, and the two experimental roles. Subjects were asked "How much does Role Pr (Role Sp) ask you to take control (be friendly)?" and "How controlling (friendly) are you (is your partner)?" Subjects rated the two experimental roles both before and after the interaction; they rated themselves and their partners only after the conversation.

Results

Interrater Reliability. Two naive coders independently provided estimates of behavioral measures for 14 randomly chosen subjects (22% of the total sample). The Pearson product-moment correlations were .80 (number of solutions), .86 (eye contact), .99 (total interaction time), and .74 (quality of solutions). No differences between the two confederates were found for any of the measures.

Sex Differences. Again, no sex differences were found for any dependent variable, and the responses of male and female subjects were pooled for subsequent analyses.

Behavioral Measures. Separate 2 X 2 X 2 ANOVAs (loneliness X feedback type X problem type) were performed for each of the four behavioral measures, and the means are presented in Table 4.

An examination of the number of solutions subjects generated revealed a significant loneliness X problem type interaction, $F(1,55)^4 = 6.57$, $p = .013$. Lonely subjects generated more solutions to the organization problem, whereas nonlonely subjects provided more solutions to the loneliness problem. In addition, a feedback X problem type interaction, $F(1,55) = 7.11$, $p = .010$, indicated that when given positive feedback, subjects thought of more solutions to the organization problem than the loneliness problem. This pattern was reversed when neutral feedback was given. Inspection of the group means reveals that, in general, subjects who responded to the loneliness problem generated more solutions than those who listened to the organization problem. However, the lonely subjects who received positive feedback showed a different trend. Those who heard the loneliness problem generated relatively few responses; those who heard the organization problem suggested a large number of solutions (by a mean of two solutions over the next highest group!). This same pattern was reflected in the objective ratings of the quality of subjects' solutions, though the differences were only of marginal significance (all ps = .06).

Insert Table 4 about here

In addition, a marginally significant difference was found in the ratings of solution quality. Subjects who received positive feedback tended to generate better solutions, $F(1,55) = 3.53$, $p = .066$. Subjects' own subjective ratings yielded a similar difference. Subjects who received positive feedback judged their solutions to be of higher quality than

did subjects who received neutral feedback, F (1,55) = 5.41, p = .024. No other independent variable approached significance.

Self-Report Measures. Lonely subjects who received positive feedback lowered their UCLA scores significantly, t (15) = 10.11, p < .001; no other group showed a significant change. These subjects also rated their mood as significantly less negative than before, t (15) = 6.33, p < .001; no other group showed a significant change. These patterns are displayed in Figure 2; the means of subjects' MAACL and UCLA scores are presented in Table 5.

Insert Figure 2 and Table 5 about here

Interpersonal Ratings of the Participants. Lonely subjects rated themselves as less friendly than nonlonely subjects did, F (1,55) = 8.29, p = .006. Subjects showed no other differences in their self-ratings.

In their partner-ratings, a feedback X problem type interaction, F (1,55) = 5.45, p = .023, showed that subjects described the confederate as less controlling if she provided positive feedback during the organizational problem and if she provided neutral feedback during the loneliness problem. Subjects showed no other differences in their partner ratings.

In comparing themselves to their partners, subjects rated their partners as less controlling than themselves, t (62) = 4.18, p < .001. Although subjects rated themselves as less controlling than neutral, t (62) = -2.69, p = .009, they rated their partners as even further from neutral, t (62) = -8.32, p < .001. Subjects rated both themselves and their partners as being significantly friendlier than neutral (both ps <.001). The means are shown in Table 6.

Insert Tables 6 and 7 about here

Interpersonal Ratings of the Roles. Lonely and nonlonely subjects showed no differences in their interpersonal ratings of the assigned roles. Dominance ratings of Role Pr did not differ from neutral either before the interaction or afterward, (both *t*s < 1). Role Sp was rated as somewhat less controlling than neutral before the interaction, t (62) = -1.90, p = .063, and significantly less controlling than neutral after the interaction, t (62) = -3.03, p = .004.

Subjects rated the two roles as friendlier than neutral, both before the interaction and afterward (all *p*s < .001). Role Sp was rated as friendlier than Role Pr before the interaction, t (62) = 2.51, p = .015, and afterwards, t (62) = 2.76, p = .007. Mean role ratings are shown in Table 7.

Discussion

Subjects' capabilities. Study 2 assigned all subjects to Role Sp. As was found in Study 1 and by Vitkus and Horowitz (1987), the social behavior of lonely and nonlonely subjects in this role was indistinguishable along several behavioral dimensions. These three studies provide compelling evidence that lonely people are able to perform adequately under certain conditions, suggesting that social behavior is mediated not by inherent skills but rather by extraindividual factors such as social roles.

Subjects' self-evaluations. Lonely subjects who received positive feedback showed modest but significant improvements in their self-rated mood and loneliness. No other subject group showed any significant change. In addition, subjects who received positive feedback thought they generated solutions of higher quality. The objective raters agreed

with this last estimate, though this last result was only marginally significant. These subjective assessments hold clear implications for the theoretical approaches compared in this study.

The self-verification approach predicts that lonely subjects would ignore or even refute positive appraisals from others. The results do not support this prediction. Subjects' subjective ratings consistently improved following positive feedback. Far from ignoring or rejecting positive feedback, lonely subjects incorporated it into their subjective evaluations.

The pattern of results described above supports the environmental approach. All lonely subjects performed adequately, but only those who received direct and unambiguous performance feedback improved their self-evaluations. Nonlonely subjects were less affected by positive feedback, but the positive feedback would not be expected to add much to their already glowing self-views. Both lonely and nonlonely subjects reacted to the neutral feedback as predicted: their self-evaluations were unaffected. (The small changes found probably reflect regression to the mean.)

These results also highlight the distinction between subjects' objective and subjective assessments. Relative to subjects who received neutral feedback, subjects who received positive feedback stated that they provided solutions of higher quality, but they did not claim to suggest any more solutions. The results of Vitkus and Horowitz (1987) and Study 1 likewise found no differences between lonely and nonlonely subjects in their estimates of the number of solutions they generated. In both studies subjects in Role Sp correctly estimated that they provided more solutions than did the subjects in Role Pr. These results clearly indicate that all subjects are able to make relatively accurate assessments of *objective* information (like the number of solutions), but *subjective* evaluations (like the quality of the solutions) require clear feedback to overcome the effects of preexisting self-conceptions.

Subjects' social behavior. Although the pattern of subjects' subjective evaluations clearly supports the environmental approach, an interpretation of subjects' behavioral responses is less clear cut. Whereas most subjects generated more solutions to the loneliness problem than the organizational problem, lonely subjects who received positive feedback responded in the opposite pattern. Perhaps lonely subjects felt uneasy discussing the loneliness problem because it served as a reminder of their own particular inadequacies. Consequently, they took the positive feedback as a sign that their job was accomplished, allowing them to focus on other topics. In contrast, the organization problem did not point out the personal failings of lonely subjects. Here the positive feedback encouraged them to generate more solutions. This interpretation is consistent with the findings of Caspi (1990), who points out that stressful situations tend to promote the expression of behaviors consistent with a person's preexisting dispositions.

Interpersonal ratings. Study 1 showed that lonely subjects who had just adopted a passive interpersonal role tended to prefer that role. Were they aware of the submissive nature of that role? The role-ratings in Study 2 suggest that they were not. All subjects rated Role Sp as involving less control than Role Pr, both before and after the interaction. It appears that people are not aware of the interpersonal function of social roles, suggesting that lonely people adopt submissive interpersonal roles because of their familiarity with them and not because of any deliberate attempt to place themselves in passive interpersonal situations. Although subjects did not recognize the submissiveness inherent in Role Pr, they did rate the person enacting Role Pr as lacking control. Apparently subjects were better able to judge their partner's behavior than her social context.

General Discussion

Taken together, these studies indicate that lonely people do not differ from nonlonely people in their social skills or in their social perceptions. Instead, these two groups appear to differ in their enduring self-conceptions and their natural preferences for particular interpersonal roles. An interpersonal model would explain these findings by conceptualizing loneliness as a consequence of the following sequence. The negative self-evaluations and submissive interaction style typical of lonely people are recognized by others, who react by taking on a complementary controlling role in interactions. This status differential then prevents lonely people from demonstrating adequate social behavior. Their resulting poor performance reaffirms their initial feelings of inadequacy, thus creating a self-perpetuating cycle. This model is diagrammed in Figure 3.

Insert Figure 3 about here

Two characteristics of social behavior contribute to the persistence of this cycle. First, interpersonal behavior is difficult to assess objectively. Study 2 showed that lonely subjects are able to adjust their self-evaluations to reflect their social performance, but they do so only when provided with clear feedback. Since unambiguous performance cues are rare in the course of everyday interactions, it is little wonder that lonely people routinely rely on their negative self-conceptions when they evaluate themselves and their behavior. As a result, lonely people will denigrate themselves even when they manage to perform adequately.

Second, people find it difficult to assess the functional nature of interpersonal roles. In the present two studies lonely and nonlonely subjects were similarly inaccurate in their

ratings of two specific social roles, and these subjects had the benefit of having these roles made salient for them. It is probable that in most unstructured situations people fail to recognize the very existence of social roles, making it all the more difficult to assess their interpersonal function. Because of the nebulous nature of interpersonal roles and their habitual preference for passivity, lonely people are especially prone to adopt social roles that ultimately prove to be self-defeating.

Therapeutic Implications

What techniques could be employed to help lonely people learn to recognize their own successful performance and to identify and avoid self-defeating social roles? Ironically, the answer may be found in social skills training paradigms. The interpersonal model of loneliness would suggest that the success of skills training procedures does not rest on the actual training of social skills, which lonely people already possess. Rather, these procedures are successful because (1) the supportive attention and encouraging feedback used by these programs provide lonely people with evidence of their own capabilities, and (2) exercises such as role playing and response rehearsal provide lonely people with techniques for identifying and avoiding self-defeating interpersonal roles. Bandura (1986) reviewed a number of these studies and concluded that therapeutic effectiveness ". . . may result as much, if not more, from instilling beliefs in self-efficacy as from the particular skills imparted" (p. 425). In short, the interpersonal model would employ many of the techniques of skills training, but it would emphasize the identification of inherent abilities that need to be utilized rather than the identification of personal deficiencies that need to be overcome.

The use of undergraduate subjects limits the generalizability of this research. While the bulk of the empirical work on loneliness has employed college student subjects, some

researchers, notably Jones et al. (1982), have employed clinical samples. It is possible that lonely people who are compelled to seek treatment may react differently than undergraduates who are identified through their responses on questionnaires, and for this reason these therapeutic recommendations must be considered tentative. Nevertheless, research involving clinically depressed subjects (e.g., Coyne, 1976b; Kowalik and Gotlib, 1987) have reported findings consistent with the interpersonal model proposed here. Future research employing clinical samples will determine the breadth and utility of this model.

References

Alloy, L. B. & Abramson, L. Y. (1979). Judgment of contingency in depressed and nondepressed students: Sadder but wiser? *Journal of Experimental Psychology: General, 108*, 441-485.

Bandura, A. (1986). *Social foundations of action and thought.* Englewood Cliffs, NJ: Prentice Hall.

Bellack, A. S. & Morrison, R. L. (1982). Interpersonal dysfunction. In A. S. Bellack, M. Hersen, & A. E. Kazdin (Eds.), *International handbook of behavior modification and therapy.* New York: Plenum Press, pp. 277-307.

Brennen, T. (1982). Loneliness in adolescence. In L.A. Peplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research, and therapy.* New York: Wiley, pp. 269-290.

Caspi, A. (1990, June). *Continuity amidst change: Toward a paradoxical theory of personality coherence.* Paper presented at the Second Annual Convention of the American Psychological Society, Dallas, TX.

Chelune, G. J., Sultan, F. E., & Williams, C. L. (1980). Loneliness, self-disclosure, and interpersonal effectiveness. *Journal of Counseling Psychology, 27*, 462-468.

Coates, D. & Wortman, C. B. (1980). Depression maintenance and interpersonal control. In A. Baum & J. E. Singer (Eds.), *Advances in environmental psychology.* (Vol. 2). Hillsdale, NJ: Erlbaum, pp. 149-182.

Coyne, J. C. (1976a). Toward an interactional description of depression. *Psychiatry, 39*, 28-39.

Coyne, J. C. (1976b). Depression and the response of others. *Journal of Abnormal Psychology, 85*, 186-193.

Coyne, J. C. & Gotlib, I. H. (1983). The role of cognition in depression: A critical appraisal. *Psychological Bulletin, 94*, 472-505.

Cronbach, L. J. (1955). Processes affecting scores on "understanding of others" and "assumed similarity." *Psychological Bulletin, 52*, 177-193.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

French, R. de S. (1981). Interpersonal problem solving skill in lonely people. Unpublished doctoral dissertation, Stanford, CA: Stanford University.

Gage, N. L. & Cronbach, L. J. (1955). Conceptual and methodological problems in interpersonal perception. *Psychological Review, 62*, 411-422.

Gotlib, I. H. & Meyer, J. P. (1986). Factor analysis of the Multiple Affective Adjective Check List: A separation of positive & negative affect. *Journal of Personality and Social Psychology, 50*, 1161-1165.

Hanley-Dunn, P., Maxwell, S. E., & Santos, J. F. (1985). Interpretation of interpersonal interactions: The influence of loneliness. *Personality and Social Psychology Bulletin, 11*, 445-456.

Hogan, R., Jones, W. H., & Cheek, J. M. (1985). Socioanalytic theory: An alternative to armadillo psychology. In R.B. Schlenker (Ed.), *The self in social life*. New York: McGraw-Hill, pp. 175-196.

Hokanson, J. E. & Meyer, B. E. B. (1984). Interpersonal expectancies & preferences for various types of social behaviours of depressed patients. *Journal of Personal and Social Relationships, 1*, 279-292.

Horowitz, L. M. & French, R. de S. (1979). Interpersonal problems of people who describe themselves as lonely. *Journal of Consulting and Clinical Psychology, 47*, 762-764.

Horowitz, L. M., French, R. de S., & Anderson, C. A. (1982). The prototype of a lonely person. In L.A. Peplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research, and therapy*. New York: Wiley.

Horowitz, L. M. & Vitkus, J. (1986). The interpersonal basis of psychiatric symptoms. *Clinical Psychology Review, 6*, 443-469.

Ickes, W. (1982). A basic paradigm for the study of personality, roles, and social behavior. In W. Ickes and E. S. Knowles (Eds.), *Personality, roles, and social behavior*. New York: Springer-Verlag.

Jones, W. H., Freeman, J. A., & Goswick, R. A. (1981). The persistence of loneliness: Self and other determinants. *Journal of Personality, 49*, 27-48.

Jones, W. H., Hobbs, S. A., & Hockenbury, D. (1982). Loneliness and social skill defects. *Journal of Personality and Social Psychology, 42*, 682-689.

Kelly, G. A. (1955). *The psychology of personal constructs*. (Vols.1 & 2). New York: Norton.

Kiesler, D. J. (1983). The 1982 interpersonal circle: A taxonomy for complementarity in human transactions. *Psychological Review, 90*, 185-214.

Kowalik, D. L. & Gotlib, I. H. (1987). Depression and marital interaction: Concordance between intent and perception of communication. *Journal of Abnormal Psychology, 96*, 127-134.

Lecky, P. (1945). *Self-consistency*. New York: Island Press.

Lewinsohn, P. M., Mischel, W., Chaplin, W., & Barton, R. (1980). Social competence and depression: The role of illusory self-perception. *Journal of Abnormal Psychology, 89*, 203-212.

Mischel, W. (1977). The interaction of person and situation. In D. Magnusson and N. S. Endler (Eds.), *Personality at the crossroads: Current issues in interactional psychology*. Hillsdale, NJ: Erlbaum, pp. 333-352.

Nisbett, R. & Ross, L. (1980). *Human inference: Strategies and shortcomings*. Englewood, NJ: Prentice-Hall.

Peplau, L. A. & Perlman, D. (1982). Perspectives on loneliness. In L.A. Peplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research, and therapy*. New York: Wiley, pp. 1-20.

Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: Concurrent & discriminant validity evidence. *Journal of Personality & Social Psychology, 39*, 472-480.

Solano, C. H. (1987). Loneliness and perceptions of control: General trends versus specific attributions. Special Issue: Loneliness: Theory, research, and applications. *Journal of Social Behavior and Personality, 2*, 201-214.

Solano, C. H., Batten, P. G., & Parish, E. (1982). Loneliness and patterns of self-disclosure. *Journal of Personality and Social Psychology, 43*, 524-531.

Solano, C. H. & Koester, N. H. (1989). Loneliness and communication problems: Subjective anxiety or objective skills? *Personality and Social Psychology Bulletin, 15*, 126-133.

Swann, W. B. (1983). Self-verification: Bringing social reality into harmony with the self. In J. Suls (Ed.), *Psychological perspectives on the self*. (Vol. 2). Hillsdale, NJ: Erlbaum, pp. 33-66.

Swann, W. B. (1984). Quest for accuracy in person perception: A matter of pragmatics. *Psychological Review, 91*, 457-477.

Swann, W. B. & Ely, R. J. (1984). A battle of wills: Self-verification versus behavioral confirmation. *Journal of Personality & Social Psychology, 46*, 1287-1302.

Swann, W. B., Griffin, J. J., Predmore, S. C., & Gaines, B. (1987). The cognitive-affective crossfire: When self-consistency confronts self-enhancement. *Journal of Personality and Social Psychology, 52*, 881-889.

Swann, W. B. & Hill, C. A. (1982). When our identities are mistaken: Reaffirming self-conceptions through social interaction. *Journal of Personality and Social Psychology, 43, 59-66.*

Swann, W. B., Pelham, B. W., & Krull, D. S. (1989). Agreeable fancy or disagreeable truth? Reconciling self-enhancement & self-verification. *Journal of Personality and Social Psychology, 57, 782-791.*

Swann, W. B., & Read, S. J. (1981). Self-verification processes: How we sustain our self-conceptions. *Journal of Experimental Social Psychology, 17*, 351-372.

Vitkus, J. & Horowitz, L. M. (1987). The poor social performance of lonely people: Lacking a skill or adopting a role? *Journal of Personality and Social Psychology, 52*, 1266-1273.

Weiss, R. S. (1973). *Loneliness: The experience of social and emotional isolation.* Cambridge, MA: MIT Press.

Zuckerman, M. & Lubin, B. (1965). *Manual for the Multiple Affect Adjective Check List.* San Diego: Educational & Institutional Testing Service.

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Footnotes

[1]The behavioral responses from five subject pairs were lost due to a microphone malfunction.

[2]Some researchers who investigate psychopathology have been interested in comparing subjects' self-perceptions to the ratings of objective coders (e.g., Alloy and Abramson, 1979; Lewinsohn, Mischel, Barton, and Chaplin, 1980). However, Cronbach (1955) and Gage and Cronbach (1955) warn that statistical and/or methodological artifacts account for most significant differences found in these sorts of comparisons. Since subjects and coders in the present two studies provided their ratings under different conditions, only the patterns of results are compared. See Coyne and Gotlib (1983) for a more complete discussion of this issue.

[3]The MAACL was scored following the procedures described by Gotlib and Meyer (1986). Analyses examining the traditional anxiety, depression, and hostility subscales yielded virtually identical results on each of the three subscales.

[4]One subject failed to follow instructions on several dependent measures and was dropped from the study.

Table 1: Behavioral Measures in Study 1

	Objective Estimates		Subjects' Estimates	
	Role Pr	Role Sp	Role Pr	Role Sp
Mean Number of Solutions				
Lonely	7.70	13.50	5.20	7.25
Subjects	(4.31)	(6.78)	(2.50)	(3.27)
Nonlonely	8.50	13.93	6.33	7.17
Subjects	(3.93)	(8.16)	(2.97)	(2.92)
Mean Quality of Solutions				
Lonely	10.88	12.99	12.15	13.60
Subjects	(4.08)	(3.51)	(3.30)	(2.64)
Nonlonely	11.63	14.13	13.89	15.06
Subjects	(2.63)	(2.59)	(3.55)	(2.71)
Mean Number of Partner's Solutions				
Lonely			7.25	5.80
Subjects			(2.53)	(3.21)
Nonlonely			7.89	5.78
Subjects			(2.95)	(2.44)
Mean Quality of Partner's Solutions				
Lonely			14.40	12.85
Subjects			(2.41)	(2.52)
Nonlonely			15.94	14.39
Subjects			(2.26)	(4.20)

(continued on next page)

Table 1: Behavioral Measures in Study 1 (Continued)

Note. Standard deviations appear in parentheses.

Note. Solution quality ranges from 1 (not helpful) to 5 (very helpful). Summed across four ratings, a neutral score would be 12.00.

Note. Role labels refer to subjects who *perform the ratings*. Thus, in Role Pr the partner being rated is in Role Sp and vice versa.

Table 2: Self-Report Measures in Study 1

		Pre-Interaction		Post-Interaction	
		Role Pr	Role Sp	Role Pr	Role Sp
Mean UCLA Scores					
	Lonely	50.35	46.80	42.90	46.45
	Subjects	(6.13)	(5.12)	(8.48)	(9.25)
	Nonlonely	29.28	28.89	28.78	29.72
	Subjects	(3.20)	(3.56)	(4.61)	(3.98)
Mean MAACL scores					
	Lonely	9.25	11.20	9.05	8.60
	Subjects	(4.54)	(2.96)	(5.06)	(2.62)
	Nonlonely	8.35	9.05	6.54	6.86
	Subjects	(3.26)	(5.46)	(3.70)	(4.25)

Note. Standard deviations appear in parentheses.

Note. Higher scores reflect greater loneliness (UCLA) and negative mood (MAACL).

Table 3: Role Ratings in Study 1

	Pre-Interaction		Post-Interaction	
	Role Pr	Role Sp	Role Pr	Role Sp
Mean Ratings of Role Pr				
Lonely	5.25	4.20	6.55	4.95
Subjects	(2.05)	(2.07)	(1.88)	(1.99)
Nonlonely	3.39	5.53	4.67	5.41
Subjects	(1.82)	(1.58)	(2.52)	(2.03)
Mean Ratings of Role Sp				
Lonely	6.25	6.85	5.95	6.60
Subjects	(2.14)	(1.72)	(2.33)	(1.90)
Nonlonely	7.22	7.65	7.33	7.47
Subjects	(1.83)	(0.86)	(1.14)	(1.37)

Note. Standard deviations appear in parentheses.

Note. Scores range from 1 (not desired) to 9 (much desired).

Table 4: Behavioral Measures in Study 2

		Objective Estimates		Subjects' Estimates	
		Positive Feedback	Neutral Feedback	Positive Feedback	Neutral Feedback
Mean Number of Solutions					
	Lonely	3.56	6.29	2.88	2.71
Loneliness	Subjects	(1.24)	(2.91)	(0.83)	(1.38)
Problem	Nonlonely	6.07	6.50	3.00	3.38
	Subjects	(4.00)	(2.93)	(1.60)	(0.74)
	Lonely	8.50	4.44	3.57	2.62
Organization	Subjects	(4.21)	(1.35)	(2.07)	(1.19)
Problem	Nonlonely	4.38	3.69	3.12	2.62
	Subjects	(2.50)	(2.91)	(1.25)	(1.06)
Mean Quality of Solutions					
	Lonely	2.18	2.65	4.57	4.14
Loneliness	Subjects	(0.79)	(0.36)	(0.98)	(1.07)
Problem	Nonlonely	3.13	2.68	4.88	4.12
	Subjects	(0.70)	(0.66)	(1.25)	(0.99)
	Lonely	3.14	2.45	4.62	3.75
Organization	Subjects	(0.52)	(0.89)	(1.19)	(0.89)
Problem	Nonlonely	2.93	2.34	4.88	4.37
	Subjects	(0.73)	(0.42)	(1.13)	(1.19)

(continued on next page)

Table 4: Behavioral Measures in Study 2 (Continued)

		Subjects' Estimates	
		Positive Feedback	Neutral Feedback
Mean Number of Partner's (Confederate's) Solutions			
	Lonely	0.62	0.71
Loneliness	Subjects	(0.75)	(1.11)
Problem	Nonlonely	1.00	0.75
	Subjects	(0.93)	(1.16)
	Lonely	0.87	1.42
Organization	Subjects	(0.83)	(1.27)
Problem	Nonlonely	0.71	1.00
	Subjects	(0.76)	(1.51)
Mean Quality of Partner's (Confederate's) Solutions			
	Lonely	2.14	1.86
Loneliness	Subjects	(1.86)	(1.46)
Problem	Nonlonely	3.25	2.29
	Subjects	(2.19)	(2.29)
	Lonely	2.38	2.88
Organization	Subjects	(1.60)	(1.55)
Problem	Nonlonely	3.60	2.50
	Subjects	(2.70)	(2.07)

Note. Standard deviations appear in parentheses.

Note. Objective ratings of solution quality range from 1 (not helpful) to 5 (very helpful); subjects' ratings range from 1 (not helpful) to 7 (very helpful).

Table 5: Self-Report Measures in Study 2

	Pre-Interaction		Post-Interaction	
	Positive Feedback	Neutral Feedback	Positive Feedback	Neutral Feedback
Mean UCLA Scores				
Lonely	48.56	48.33	40.82	44.45
Subjects	(5.94)	(7.88)	(9.08)	(10.02)
Nonlonely	27.62	27.00	30.08	28.31
Subjects	(1.89)	(1.71)	(6.37)	(4.05)
Mean MAACL Scores				
Lonely	12.38	9.73	5.31	7.93
Subjects	(6.91)	(8.44)	(4.84)	(6.10)
Nonlonely	6.38	7.00	3.62	6.12
Subjects	(7.92)	(6.92)	(5.62)	(5.38)

Note. Standard deviations appear in parentheses.

Note. Higher scores reflect greater loneliness (UCLA) and negative mood (MAACL).

Table 6: Interpersonal Ratings in Study 2--Self and Partner

	Loneliness Problem		Organization Problem	
	Positive Feedback	Neutral Feedback	Positive Feedback	Neutral Feedback
Mean Self-rated Dominance				
Lonely	3.38	3.71	4.00	3.62
Subjects	(1.06)	(1.89)	(1.60)	(1.85)
Nonlonely	3.50	3.00	4.12	2.38
Subjects	(1.60)	(1.77)	(1.46)	(1.41)
Mean Self-rated Friendliness				
Lonely	5.88	5.42	6.00	6.00
Subjects	(0.64)	(1.40)	(0.76)	(0.93)
Nonlonely	6.62	6.38	6.25	6.50
Subjects	(0.74)	(0.74)	(0.46)	(0.76)
Mean Ratings of Partner's (Confederate's) Dominance				
Lonely	2.50	2.57	1.75	2.75
Subjects	(1.77)	(1.51)	(0.71)	(1.83)
Nonlonely	2.62	1.25	1.88	3.25
Subjects	(1.77)	(0.71)	(1.13)	(2.38)
Mean Ratings of Partner's (Confederate's) Friendliness				
Lonely	5.88	6.00	5.88	5.75
Subjects	(0.99)	(0.82)	(1.25)	(1.67)
Nonlonely	6.50	5.75	6.50	5.62
Subjects	(0.76)	(1.49)	(0.53)	(1.41)

Note. Standard deviations appear in parentheses.

Note. Scores range from 1 (not at all) to 7 (very much).

Table 7: Interpersonal Ratings in Study 2--Social Roles

	Pre-Interaction		Post-Interaction	
	Positive Feedback	Neutral Feedback	Positive Feedback	Neutral Feedback
Mean Ratings of Dominance in Role Pr				
Lonely	3.53	3.87	3.56	3.87
Subjects	(1.35)	(2.13)	(1.55)	(1.60)
Nonlonely	3.81	4.25	4.19	3.00
Subjects	(1.90)	(1.73)	(1.97)	(1.97)
Mean Ratings of Friendliness in Role Pr				
Lonely	5.81	5.33	5.69	5.73
Subjects	(1.52)	(1.40)	(1.14)	(1.44)
Nonlonely	6.06	5.06	6.00	5.94
Subjects	(1.44)	(1.12)	(1.26)	(1.06)
Mean Ratings of Dominance in Role Sp				
Lonely	4.06	3.13	4.25	3.07
Subjects	(1.69)	(1.41)	(1.18)	(1.44)
Nonlonely	3.75	3.44	3.50	2.94
Subjects	(1.84)	(1.67)	(1.32)	(1.61)
Mean Ratings of Friendliness in Role Sp				
Lonely	5.81	5.73	6.14	6.27
Subjects	(1.38)	(1.03)	(0.75)	(0.80)
Nonlonely	6.06	6.12	6.31	6.00
Subjects	(1.24)	(0.88)	(0.87)	(1.50)

Note. Standard deviations appear in parentheses.

Note. Scores range from 1 (not at all) to 7 (very much).

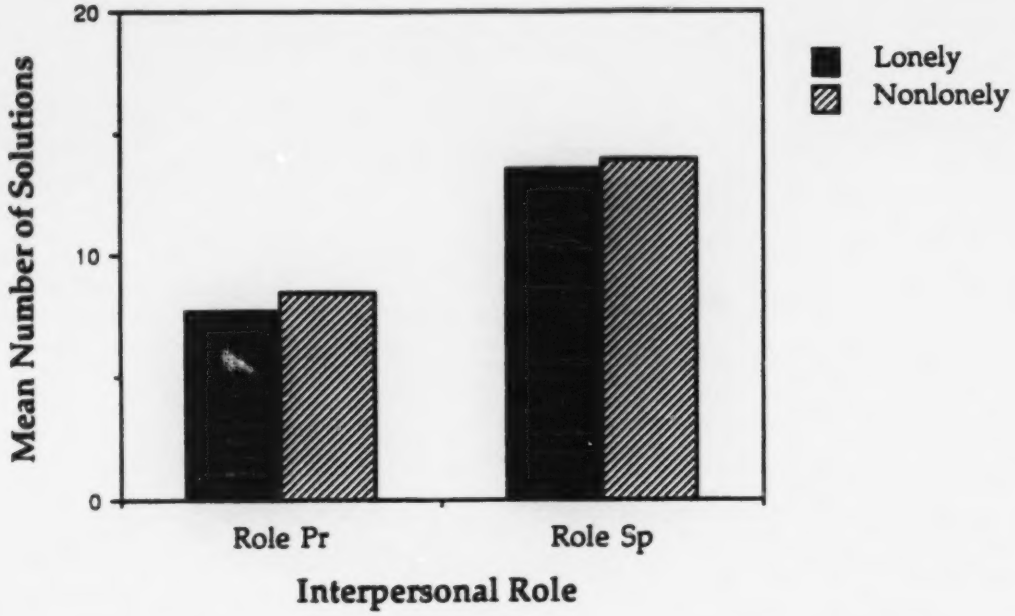
Figure Captions

Figure 1. Mean number (top) and quality (bottom) of solutions generated in Study 1.

Figure 2. Mean change in UCLA scores (top) and MAACL scores (bottom) in Study 2.

Figure 3. A schematic representation of the interpersonal model of loneliness.

Figure 1


Mean Number of Solutions
20
10
0
Role Pr
Role Sp
Interpersonal Role
Lonely
Nonlonely

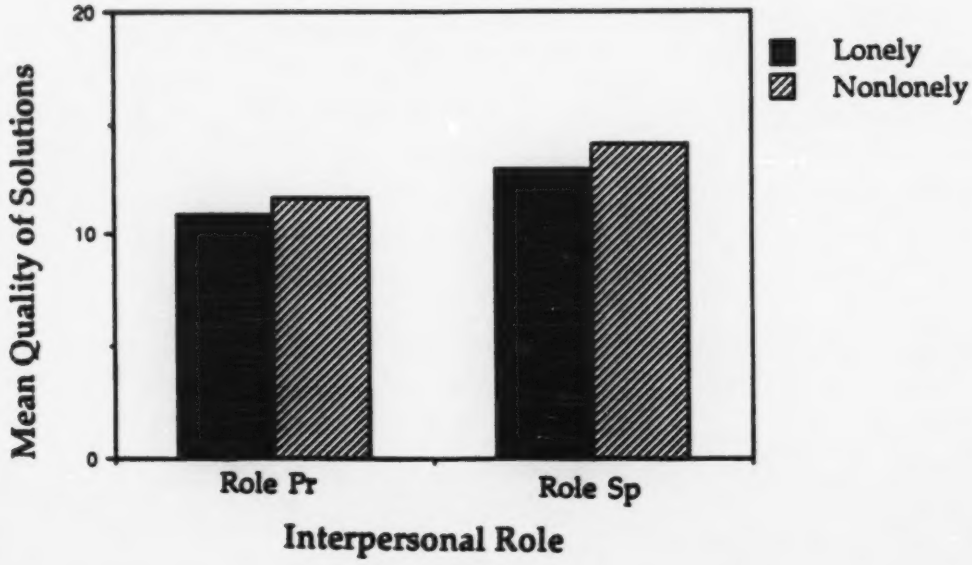
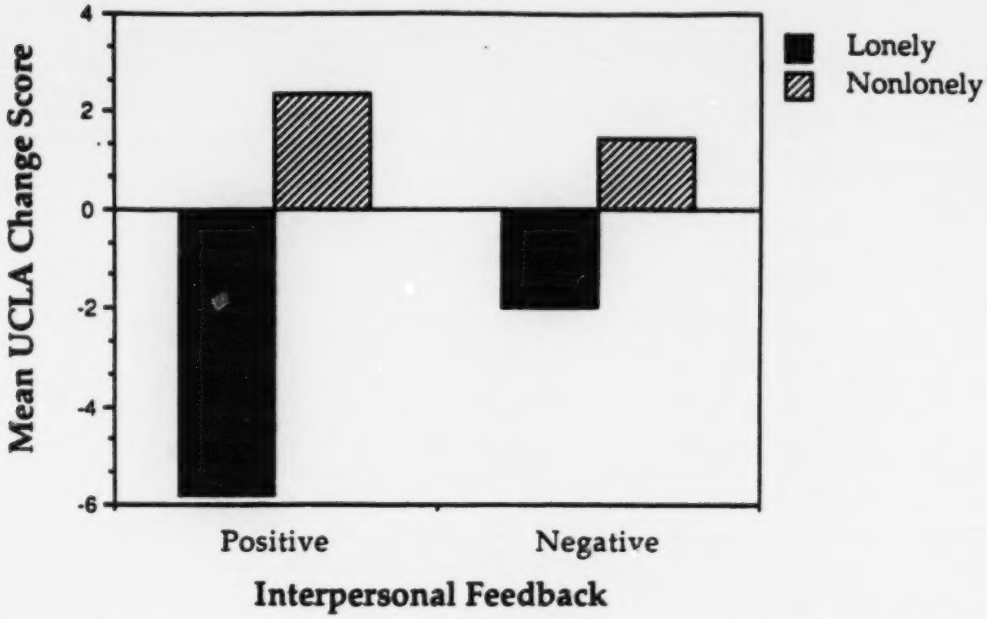

Mean Quality of Solutions
20
10
0
Role Pr
Role Sp
Interpersonal Role
Lonely
Nonlonely

Figure 2


Mean UCLA Change Score
4
2
0
-2
-4
-6
Positive
Negative
Interpersonal Feedback
Lonely
Nonlonely

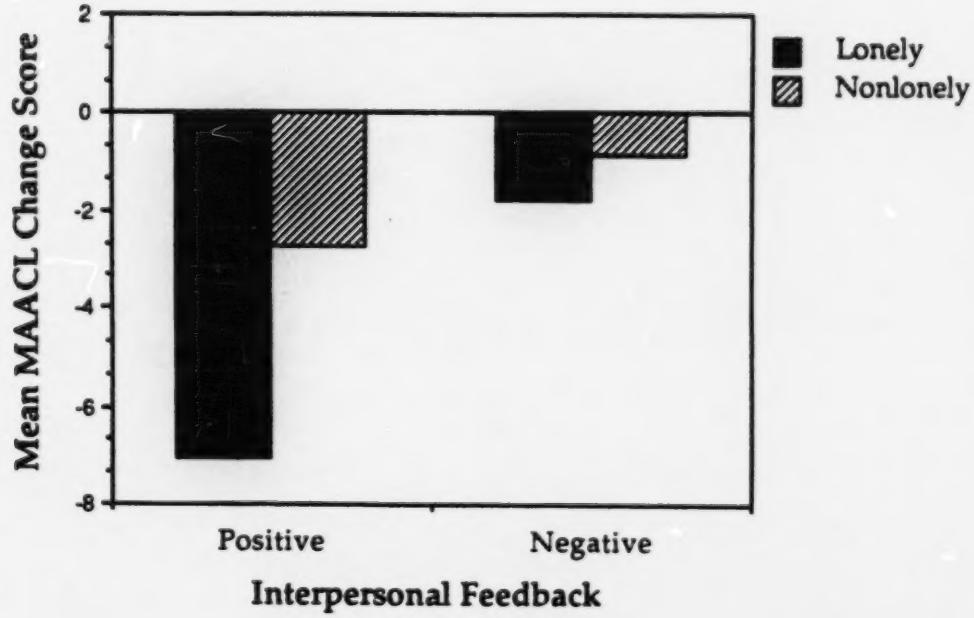
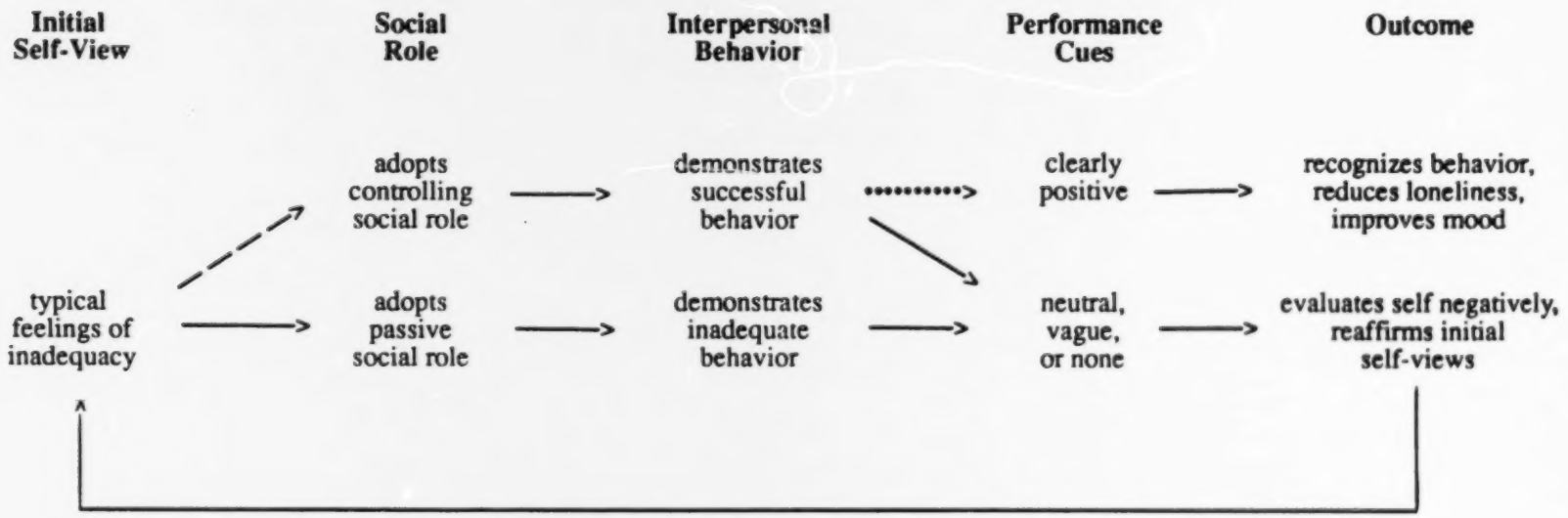

Mean MAACL Change Score
2
0
-2
-4
-6
-8
Positive
Negative
Interpersonal Feedback
Lonely
Nonlonely

Figure 3



The solid arrow (————>) denotes the natural progression of the loneliness cycle.

The dashed arrow (— — —>) denotes the assignment to Role Sp in Study 1.

The dotted arrow (••••••••••>) denotes the provision of positive feedback in Study 2.